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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,188	11/26/2001	Nasreen Gazala Chopra	10010188-1	8737

7590 05/17/2005

AGILENT TECHNOLOGIES, INC  
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EXAMINER

KIKNADZE, IRAKLI

ART UNIT PAPER NUMBER

2882

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/994,188

Applicant(s)

CHOPRA ET AL.

Examiner

Irakli Kiknadze

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2, 5, 13-16, 18-20 and 33-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 13-16, 18-20, 33, 34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 5 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. In response to the office action dated November 4, 2004 the amendment has been received on January 26, 2005.

Claims 2, 5, 15, 18 and 19 have been amended.

Claims 33-37 have been newly added.

Claims 2, 5, 13-16, 18-20 and 33-37 are currently pending in this application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 2, 13-16, 18-20, 33, 34, 36 and 37 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 2 is objected to because of the following informalities: It has been held that the recitation that an element is "being adapted to" reform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138. Claim 2, lines 4-6 and "circuit being adapted to provide " perhaps should read as -- circuit provides -- . Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 34 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 2, the phrase " a gas detector configured to retain a volume of gas" renders the claim indefinite because it fails to define the necessary structure to retain the volume of gas.

With respect to claim 34, the phrase " the first and second chambers are configured to communicate with each other pneumatically" renders the claim indefinite because it fails to define the necessary structure for the chambers to communicate with each other pneumatically.

With respect to claim 36, the phrase " a pressure regulator configured to set a first pressure of gas in the first chamber " renders the claim indefinite because it fails to define the necessary structure for the pressure regulator to set the pressure in the chamber.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 2, 15, 33, 34, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Spergel et al. (US Patent 3,418,474).

With respect to claim 2, Spergel teaches an imaging system (Figs. 1-4) comprising: a gas detector retains a volume of gas, the gas detector having a first detection circuit corresponding to a first chamber (26) and a second detection circuit corresponding to a second chamber (any other chamber (26)), the first detection circuit provides a first signal indicative of an intensity of a first portion of x-rays radiating into the first chamber, the second detection circuit provides a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second chamber, the first portion of x-rays being different than the second portion of x-rays, and wherein an x-ray stopping component (a heavy metal such as lead) is arranged between the first and second chambers, the x-ray stopping component operative to absorb off-axis photons (column 2, lines 38-70; column 3, lines 15-30 and 66-75; column 4, lines 14-30).

With respect to claim 15, Spergel teaches method for imaging comprising: providing a first chamber (26), a second chamber (any other chamber (26)), and an x-ray stopping component (20) between the first chamber and the second chambers ; generating a first signal indicative of an intensity of a first portion of x-rays radiating into the first chamber, the first signal corresponding to at least a first pixel, and generating a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second chamber, the second signal corresponding to at least a second pixel, wherein the first portion of x-rays is different than the second

portion of x-rays (column 2, lines 38-70; column 3, lines 15-30 and 66-75; column 4, lines 14-30).

With respect to claims 33 and 37, Spergel teaches a pixelated gas detector comprising: a first chamber configured to retain a first volume of gas; a first detection circuit adapted to provide a first signal indicative of an intensity of a first portion of x-rays radiating into the first chamber; a second chamber configured to retain a second volume of gas; a second detection circuit adapted to provide a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second chamber; and an x-ray stopping component, a heavy metal such as lead (column 3, lines 17-20), arranged between the first and second chambers, the x-ray stopping component absorbs off-axis photons (column 2, lines 38-70; column 3, lines 15-30 and 66-75; column 4, lines 14-30).

With respect to claim 34, Spergel teaches that the first and second chambers communicate with each other pneumatically (column 3, lines 56-60).

With respect to claim 36, Spergel teaches a pressure regulator (as a pump (41)) sets a first pressure of gas in the first chamber (column 3, lines 67-70).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spergel et al. (US Patent 3,418,474) as applied to claims 2 and 15 above, and further in view of McDaniel (US Patent 4,780,897).

With respect to claim Spergel teaches the claimed invention except for means for changing a pressure of the volume of gas and means for changing the gas from one type of gas to another tape of gas. McDaniel teaches an X-ray detector using two different gases (ion sources) at different pressures, wherein the tapes of gasses (e.g. Krypton and Xenon) and the pressures could optimally be selected to pass higher energy X-rays an/or to allow interact with lower energy X-rays for producing desirable X-ray image (column 12; lines 15-25). It would have been obvious to one ordinary skill in art at the time invention was made to employ the teachings of potentially changing operating characteristics of the gas detector of McDaniel in the X-ray imaging system of Spergel because it would provide the imaging system with a dual energy difference imaging capabilities using the gas detector.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spergel et al. (US Patent 3,418,474) as applied to claim 15 above, and further in view of Siedband (US Patent 5,308,988).

With respect to claim Spergel teaches the claimed invention except for rendering the first pixel based on the first signal and rendering the second pixel based on the second signal. Siedband teaches a method for x-ray imaging using a radiation detector with the ionization chambers comprising generating the signals indicative of x-ray

radiation intensity for each pixel, one at a time. Further, a computer (46) computes data and displays on a screen (49) (column 4, lines 32-48).

To display an image, such as in medical imaging applications, it is known to associate particular signal values with particular colors and opacities (known as visualization parameters) to assist visualization. This process comprises computing a 2D data set (pixel data set) representing a 2D projection of the data set for display on a computer screen or other conventional 2D display apparatus. This process is known as rendering.

It would have been obvious to one ordinary skill in art at the time invention was made to employ the pixel data processing and displaying (rendering) teachings of Siedband in the X-ray imaging system of Spergel because it would provide enhanced visual interpretation of the image.

10. Claims 19 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Spergel et al. (US Patent 3,418,474) as applied to claim 15 above, and further in view of in view of Little et al (US Patent 5,119,408).

With respect to claims 19 and 20, Spergel teaches the claimed invention except for providing an object and moving the object relative to the volume of the gas while the object is being irradiated. Little teaches a method (Figs. 3A-3B) for inspecting an object (80) moving relative to a Xenon gas detector (column 4; line 79 –column 5; line 16) to obtain dynamic X-ray images corresponding to the object. It would have been obvious to one ordinary skill in art at the time invention was made to employ the teachings of



Little with the imaging method of Spergel in order to provide dynamic X-ray images corresponding to the object of interest.

***Allowable Subject Matter***

11. Claims 5 and 35 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. With respect to claims 5 and 35 prior art fails to teach or make obvious an imaging system and a pixilated gas detector comprising a first and a second gas reservoir pneumatically communicating with the a first chamber such that gas from either the first or the second gas reservoir can be selectively provided to the first chamber as claimed in claims 2 and 33.

***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze  
May 11, 2005

IK

  
**EDWARD J. GLICK**  
**SUPERVISORY PATENT EXAMINER**